EXHIBIT A

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EXAMINER	
KHATRI, ANIL	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 11/395,816	**Applicant(s)** KULKARNI ET AL.
	Examiner Anil Khatri	**Art Unit** 2191

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *3/30/06* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: Summary of the invention is identical and verbatim as an abstract.

Content of Specification

(a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.

(b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.

(c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.

(d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).

(e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), “Sequence Listings” (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

(f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:

(1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."

(2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."

(g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

(h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.

(i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

(j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).

(k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).

(l) Sequence Listing, See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-33 are rejected under 35 USC 101 because they disclose a claimed invention that is an abstract idea as defined in the case *In re Warmerdam*, 33, F 3d 1354, 31 USPQ 2d 1754 (Fed. Cir. 1994).

Analysis: Claims 1-33 disclosed by the applicant as being a “system for distributing…”. Since the claims are each a series of steps to be performed on a computer the processes must be analyzed to determine whether they are statutory under 35 USC 101.

Examiner interprets that the claims 1-33 are non-statutory because they do not disclose that how a system will be able to process and carry out its intended results incorporating a processor, memory and medium. Claims 1-33 recites storage unit, node and block device without showing how and where is been done? Therefore, claims 1-33 are an abstract idea and merely a storage unit for some data without representing intermediate steps so its functionality cannot be realized and does not produce any useful results. Thus claims 1-33 are non-statutory and rejected under 35 USC 101.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 recites the limitation "union block device". There is insufficient antecedent basis for this limitation in the claim. Further is unclear and vague what applicant means by union block device?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pavan et al USPN 6,502,238 in view of Davidson USPN 7,475,274.

Regarding claims 1 and 17

Pavan et al teaches

a first storage unit for storing blocks of a root image of the compute node (column 2, line 29, according to another aspect of the invention, a user program specifying connections between a plurality of program blocks distributed across a plurality of processing nodes is received. At least one program block located on a root processing node is identified. The root node is the processing node controlling execution of the program. The input and output connections from each one of the program blocks located on the root node are traced. Connection between one of the program blocks located on the root processing node and one of the program blocks located on a remote processing node are identified. A first system-level block is inserted on the root processing node. A second system-level block is inserted on the remote node. The first and second system-level blocks provide network services. A program fragment is created for the processing nodes. The program fragment for each processing node comprises the program blocks and the system-level blocks located on the processing node);

a second storage unit for storing a leaf image, the leaf image comprising new data blocks and changes to the blocks of the root image (column 10, line 12, the connections out of and into the block are examined to identify a next child of the root block (box 604). A connection between two program blocks is also referred to herein as an "edge." A "child" is a program block that is connected to the current block that is

being processed by the "GROW-FRAGMENT" step. The child may be located on the same processing node as the block or the child may be located on a different processing node. If the next child of the root node exists (box 606), then the child is examined to determine if the child is already a part of a program fragment (box 610). If the child is already in a program fragment, then this connection is a backedge and indicates a cycle. In one embodiment, a variable (e.g. backedge) is set to indicate if the connection is a backedge or not. After determining if the child is already in a program fragment, the location of the child is compared to the location of the block to determine if the child and the block are located on the same processing node (box 610). If the child is on a different processing node, then the flowchart continues to FIG. 6B as indicated by the label "C". If the child is on the same processing node as the block, then the connection between the child and the block is checked to see if the connection is a backedge (box 612). If the connection is not a backedge, then the flowchart continues at "F" (box 660) of FIG. 6C. If the connection is a backedge, then the flowchart continues at "H" (box 680) of FIG. 6E). Pavan et al does not teach explicitly a union block device for interfacing between the compute node and the first and second storage units to distribute the application environment to the compute node, wherein the union block device creates the application environment by merging the blocks of the root image stored on the first storage unit with the blocks of the leaf image stored on the second storage unit. However, Davidson teaches (see summary of the invention, column 4, line 30, management node 105 comprises at least one blade substantially dedicated to managing or assisting an administrator. For example,

management node 105 may comprise two blades, with one of the two blades being redundant (such as an active/passive configuration). In one embodiment, management node 105 may be the same type of blade or computing device as HPC nodes 115. But, management node 105 may be any node, including any Number of circuits and configured in any suitable fashion, so long as it remains operable to at least partially manage grid 110. Often, management node 105 is physically or logically separated from the plurality of HPC nodes 115, jointly represented in grid 110.
In the illustrated embodiment, management node 105 may be communicably coupled to grid 110 via link 108. Reference to a "link" encompasses any appropriate communication conduit implementing any appropriate communications protocol. As an example and not by way of limitation, a link may include one or more wires in one or more circuit boards, one or more internal or external buses, one or more local area networks (LANs), one or more metropolitan area networks (MANs), one or more wide area networks (WANs), one or more portions of the Internet, or a combination of two or more such links, where appropriate. In one embodiment, link 108 provides Gigabit or 10 Gigabit Ethernet communications between management node 105 and grid 110). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate union block in between computing nodes. The modification would have been obvious because one of ordinary skill in the art would have been motivated to combine teaching into distributing computing environment to achieve processing efficiency and reduces compilation time.

Regarding claims 2 and 21

Pavan et al teaches

the compute node comprises a server (column 9, line 28, four types of communications blocks exist: an input client block, an output client block, an input server block and an output server block. Communications blocks are inserted into the system-level program in client-server pairs to facilitate communication between program blocks distributed across the network. In the example system-level program 402 shown in FIG. 4, a pair of communications blocks 410, 412 is inserted in the system-level program between the MIMO program block 112 and the display program block 110. One of the communications blocks is a client block and the other is a server block. In an example scenario where the MIMO program block 112 is located on a root node and the display program block 110 is located on a remote node, the communications block 410 adjacent the MIMO program block 112 is an output client block and the communications block 412 adjacent the display block 110 is an input server block).

Regarding claims 3 and 22

Pavan et al teaches

compute node comprises a thin-client workstation (column 9, line 28, four types of communications blocks exist: an input client block, an output client block, an input server block and an output server block.

Communications blocks are inserted into the system-level program in client-server pairs to facilitate communication between program blocks distributed across the network. In the example system-level program 402 shown in FIG. 4, a pair of communications blocks 410, 412 is inserted in the system-level program between the MIMO program block 112 and the display program block 110. One of the communications blocks is a client block and the other is a server block. In an example scenario where the MIMO program block 112 is located on a root node and the display program block 110 is located on a remote node, the communications block 410 adjacent the MIMO program block 112 is an output client block and the communications block 412 adjacent the display block 110 is an input server block).

Regarding claims 4 and 23

Pavan et al teaches

the root image comprises an operating system (column 7, line 26, in one embodiment, the method of constructing and distributing block-based program fragments is incorporated into software executing on a computer. As described below, the software program constructs the desired application by resolving connection conflicts between distributed program blocks specified in the user program and inserting the necessary system-level blocks in the system-level program. In one embodiment, the software executes under an operating system such as Solaris 2.5 or the like and executes on an industry-standard workstation such as a Sun SPARCstation 20 or the like. The software program is developed using any high level language having programming

constructs to support blocks. In an example embodiment, the software is developed using the C++ programming language. A user interface for allowing the user to create user programs by selecting program blocks from a block library is implemented with any common graphical user interface such as Xviews or the like).

Regarding claims 5 and 24

Davidson teaches

the root image is concurrently accessible to a plurality of compute nodes (column 4, line 55, grid 110 is a group of nodes 115 interconnected for increased processing power. Typically, grid 110 is a 3D Torus, but it may be a mesh, a hypercube, or any other shape or configuration without departing from the scope of this disclosure. Reference to a "torus" may encompass all or a portion of grid 110, where appropriate, and vice versa, where appropriate. The links between nodes 115 in grid 110 may be serial or parallel analog links, digital links, or any other type of link that can convey electrical or electromagnetic signals such as, for example, fiber or copper. Each node 115 is configured with an integrated switch. This allows node 115 to more easily be the basic construct for the 3D Torus and helps minimize XYZ distances between other nodes 115. Further, this may make copper wiring work in larger systems at up to Gigabit rates with, in some embodiments, the longest cable being less than 5 meters. In short, node 115 is generally optimized for nearest-neighbor communications

and increased I/O bandwidth).

Regarding claims 6, 7, 25 and 26

Pavan et al teaches

first storage unit is remotely located from the compute node (column 8, line 51, FIG. 5A is a high-level flowchart of one embodiment of a method of translating a user program to a system-level program. The initial step "Read in the block program" 502 reads the user program file as input. The next step "Is the block program distributed?" 504 determines if the program blocks specified in the user program are located on a single processing node or are distributed across a network of processing nodes. If the program blocks are located on a single node then the step "Execute Program" 506 executes the user program. If the program blocks are distributed across a network, then the step "GROW_FRAGMENT" 508 detects program blocks located on different processing nodes and inserts one or more system-level blocks in the system-level program. The step "GROW_FRAGMENT" 508 constructs a program fragment (referred to herein as a fragment) for each node on which one or more program blocks reside. The fragment comprises the program blocks and the system-level blocks running on the node. After a fragment is constructed for a node, the fragment is written to the node in the step "WRITE_FRAGMENTS" 510. The processing node from which the user program is controlled is referred to as the control node. In one embodiment, the control node is the node on which the user program is submitted

for execution. In addition to the fragment that is written to each remote node, a fragment (referred to herein as a root fragment) is written to the control node).

Regarding claim 8, 18 and 27

Pavan et al teaches

the second storage unit contains a block modification log for the compute node (column 4, line 48, each one of the program blocks is logically characterized as a source block, a sink block or an intermediate block. A source block produces data. In an application for a control system, example source blocks represent cameras, infrared cameras, microphones, temperature sensors, pressure sensors, color sensors, laser sensors, optical sensors, disk drives, tape drives, memory, network monitoring devices such as an Ethernet sniffer and the like. A sink block consumes data. Example sink blocks represent displays, speakers, control valves, plotters, printers, disk drives, memory, tape drives, locking devices, brakes, throttles and the like. Between source and sink blocks are intermediate blocks that represent physical devices or software that perform various processing functions. Image recognition, thresholding, synchronization and flow control are examples of functions associated with intermediate blocks. Additional intermediate blocks comprise any device or software that processes or transforms data. As will be readily apparent to one of skill in the art, these categories are not mutually exclusive. For example, a disk storage system is capable of being represented as either a source block when data is read from the disk or as a sink block when data is written to the disk. In the

example application shown in FIG. 1, camera A 102 and camera B 104 are represented by source blocks; display 110 is represented by a sink block; and synchronizer 106 and image processor 108 are represented as intermediate blocks).

Regarding claims 9 and 28

Davidson teaches

first storage unit in contained within a first partition on a hard disk and the second storage unit is contained within a second partition on the hard disk (see figure 5).

Regarding claims 10 and 29

Davidson teaches

the union block device comprises a low-level driver for interfacing between the first and second storage units and the file system of the compute node (column 4, line 18, at a high level, HPC server 102 includes a management node 105, a grid 110 comprising a plurality of nodes 115, and cluster management engine 130. More specifically, server 102 may be a standard 19" rack including a plurality of blades (nodes 115) with some or all of the following components: i) dual-processors; ii) large, high bandwidth memory; iii) dual host channel adapters (HCAs); iv) integrated fabric switching; v) FPGA support; and vi) redundant power inputs or N+1 power supplies. These various components allow for failures to be confined to the node level. But it will be understood

that HPC server 102 and nodes 115 may not include all of these components. Management node 105 comprises at least one blade substantially dedicated to managing or assisting an administrator. For example, management node 105 may comprise two blades, with one of the two blades being redundant (such as an active/passive configuration). In one embodiment, management node 105 may be the same type of blade or computing device as HPC nodes 115. But, management node 105 may be any node, including any Number of circuits and configured in any suitable fashion, so long as it remains operable to at least partially manage grid 110. Often, management node 105 is physically or logically separated from the plurality of HPC nodes 115, jointly represented in grid 110. In the illustrated embodiment, management node 105 may be communicably coupled to grid 110 via link 108. Reference to a "link" encompasses any appropriate communication conduit implementing any appropriate communications protocol. As an example and not by way of limitation, a link may include one or more wires in one or more circuit boards, one or more internal or external buses, one or more local area networks (LANs), one or more metropolitan area networks (MANs), one or more wide area networks (WANs), one or more portions of the Internet, or a combination of two or more such links, where appropriate. In one embodiment, link 108 provides Gigabit or 10 Gigabit Ethernet communications between management node 105 and grid 110).

Regarding claims 11, 12 and 19

Pavan et al teaches

the union block device, upon receiving a write request from the compute node for a sector X, creates an appropriate persistent mapping for sector X (column 7, line 53, FIG. 4 is a functional block diagram of the mapping of a user program 400 for the control system application shown in FIG. 1 to a corresponding system-level program 402 having program fragments. In the example shown in FIG. 4, the user program 400 describes the interconnection between the camera A program block 102, the camera B program block 104, the MIMO program block 112 and the display program block 110. Each one of the program blocks 102, 104, 110, 112 is located on different a computing node distributed across a network as shown in FIG. 3).

Regarding claims 13, 14, 30 and 31

Davidson teaches

the system operates in a high performance computing cluster (column 2, line 1, in one embodiment, a method for fault tolerance and recovery in a high-performance computing (HPC) system includes monitoring a currently running node in an HPC system including multiple nodes. A fabric coupling the multiple nodes to each other and coupling the multiple nodes to storage accessible to each of the multiple nodes and capable of storing multiple hosts that are each executable at any of the multiple nodes. The method includes, if a fault occurs at the currently running node,

discontinuing operation of the currently running node and booting the host at a free node in the HPC system from the storage. Particular embodiments of the present invention may provide one or more technical advantages. As an example, particular embodiments provide fault tolerance and recovery in a cluster of commodity computer systems. Particular embodiments provide viable fault tolerance and recovery in a cluster of commodity computer systems for scientific and data-center computing applications. Particular embodiments provide cost-effective fault tolerance and recovery in a cluster of commodity computer systems for scientific and data-center computing applications. Particular embodiments of the present invention provide all, some, or none of the above technical advantages. Particular embodiments may provide one or more other technical advantages, one or more of which may be readily apparent to a person skilled in the art from the figures, description, and claims herein).

Regarding claims 15 and 32

Pavan et al teaches

the first storage unit is read only (column 4, line 48, each one of the program blocks is logically characterized as a source block, a sink block or an intermediate block. A source block produces data. In an application for a control system, example source blocks represent cameras, infrared cameras, microphones, temperature sensors, pressure sensors, color sensors, laser sensors, optical sensors, disk drives, tape drives, memory, network monitoring devices such as an Ethernet sniffer and the like. A sink block consumes data. Example sink blocks represent displays, speakers,

control valves, plotters, printers, disk drives, memory, tape drives, locking devices, brakes, throttles and the like. Between source and sink blocks are intermediate blocks that represent physical devices or software that perform various processing functions. Image recognition, thresholding, synchronization and flow control are examples of functions associated with intermediate blocks. Additional intermediate blocks comprise any device or software that processes or transforms data. As will be readily apparent to one of skill in the art, these categories are not mutually exclusive. For example, a disk storage system is capable of being represented as either a source block when data is read from the disk or as a sink block when data is written to the disk. In the example application shown in FIG. 1, camera A 102 and camera B 104 are represented by source blocks; display 110 is represented by a sink block; and synchronizer 106 and image processor 108 are represented as intermediate blocks).

Regarding claims 16 and 33

Pavan et al teaches

an intermediate image between the root image and the leaf image, wherein the intermediate image comprises an application environment service group (column 12, line 1, FIG. 7A is a functional block diagram of the program fragments for the application shown in FIG. 1. In the example scenario, the user program shown in FIG. 2 is submitted for execution on processing node C 300 of FIG. 7A. After the software identifies that the program blocks specified in the user

program are distributed across computing nodes in the network, the software begins to build a program fragment for each one of the computing nodes having at least one program block specified in the user program. In this example embodiment, the software begins with the program blocks located on node C 300 because node C is the node where the user program was submitted for execution. The software identifies input synchronizer program block 106 which has two output ports. The output ports of program block 106 are connected to input ports of image processor program block 108. Because the image processor program block 108 and the input synchronizer program block 106 reside on the same node C 300, no communications blocks are required for information to pass between the program blocks 106, 108. Image processor program block 108 has two output ports. One output port is connected to display program block 110 on node D 302. Because display program block 110 is located on a different computing node than image processor program block 108, the software must break the connection between image processor program block 108 and display program block 110 and insert communications blocks 700, 702. As described earlier, communications blocks are inserted into the system-level program in client-server pairs. First, the software adds an input server block 702 to the program fragment for node D 302. The input server block 702 is coupled to the display program block 110. Then the software adds an output client block 700 to the program fragment on node C 300. The output client block 700 is coupled to the image processor program block 108. Next, the software

connects an output port of the output client block 700 on node C 300 to an input port of the input server block 702 on node D 302).

Regarding claim 20

Pavan et al teaches

reconciling the root image and the leaf image to form a new root image(column 13, line 3, the software identifies the connection between camera A program block 102, input synchronizer block 106, image processor program block 108 and returning to camera A program block 102 as a feed back loop. Rather than continuing to follow the connections between these applications infinitely, the software identifies the connection between image processor program block 108 and camera A program block 102 (and the associated communications blocks 706, 704) as a back edge and does not continue to follow the loop. A back edge is identified when, in processing a new edge, the new edge leads to a node that has already been fragmented/processed. Rather, the software looks for other connections to image processor program block 108. After the software establishes the connections for all of the input and output ports of image processor program block 108, the software returns to input synchronizer program block 106. Input synchronizer program block 106 has two input ports. One of the input ports is coupled to input client block 710 as described above. The other input port of the Input synchronizer program block 106 is connected to an output port of camera B program block 104 on node B 306. Because camera B program block 104 is located on a different computing node than input synchronizer program block 106, the software

must break the connection between input synchronizer program block 106 and camera B program block 104 and insert communications blocks 712, 714. First, the software adds an output server block 712 to the program fragment for node B 306. The output server block 712 is coupled to the camera B program block 104. Then the software adds an input client block 714 to the program fragment on node C 300. The input client block 714 is coupled to the input synchronizer program block 106. Next, the software connects the input port of input client block 714 on node C 300 to an output port of the output server block 712 on node B 306).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anil Khatri whose telephone number is 571-272-3725. The examiner can normally be reached on M-F 8:30-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Zhen can be reached on 571-272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

***

/Anil Khatri/

Primary Examiner, Art Unit 2191